

**FACT SHEET FOR STATE WASTE DISCHARGE PERMIT ST 6031**  
**CITY OF FORKS**

**SUMMARY**

The sewage treatment plant for the City of Forks uses a lagoon with aeration and activated sludge followed by clarification, and discharge to infiltration basins that percolate to ground water. The facility has had difficulty disposing of sewage sludge which has been spray applied to land on-site. The main problem has been the over application of solids and excessive hydraulic loading at the sludge disposal site. The City serves approximately 1,200 connections.

## TABLE OF CONTENTS

INTRODUCTION .....	1
BACKGROUND INFORMATION .....	2
DESCRIPTION OF THE COLLECTION AND TREATMENT SYSTEM .....	2
History .....	2
Collection System Status .....	2
Treatment Processes .....	2
Distribution System (Infiltration Basin) .....	2
Residual Solids .....	2
GROUND WATER .....	3
PERMIT STATUS .....	3
SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT .....	4
WASTEWATER CHARACTERIZATION .....	4
SEPA COMPLIANCE .....	5
PROPOSED PERMIT LIMITATIONS .....	5
TECHNOLOGY-BASED EFFLUENT LIMITATIONS .....	5
GROUND WATER QUALITY-BASED EFFLUENT LIMITATIONS .....	6
COMPARISON OF LIMITATIONS WITH THE EXISTING PERMIT ISSUED IN 1986 .....	7
MONITORING REQUIREMENTS .....	8
INFLUENT AND EFFLUENT MONITORING .....	8
GROUND WATER MONITORING .....	8
OTHER PERMIT CONDITIONS .....	8
REPORTING AND RECORDKEEPING .....	8
FACILITY LOADING .....	8
IRRIGATION AND CROP MANAGEMENT PLANS .....	9
OPERATIONS AND MAINTENANCE .....	9
RESIDUAL SOLIDS HANDLING .....	9
PRETREATMENT .....	9
GROUND WATER QUALITY EVALUATION (HYDROGEOLOGIC STUDY) .....	10
GENERAL CONDITIONS .....	10
RECOMMENDATION FOR PERMIT ISSUANCE .....	10
REFERENCES FOR TEXT AND APPENDICES .....	11
APPENDICES .....	12
APPENDIX A--PUBLIC INVOLVEMENT INFORMATION .....	12
APPENDIX B--GLOSSARY .....	13
APPENDIX C--TECHNICAL CALCULATIONS .....	16
APPENDIX D--RESPONSE TO COMMENTS .....	17

## INTRODUCTION

This fact sheet is a companion document to the draft State Waste Discharge Permit No. ST 6031. The Department of Ecology (Department) is proposing to issue this permit, which will allow discharge of wastewater to waters of the state of Washington. This fact sheet explains the nature of the proposed discharge, the Department's decisions on limiting the pollutants in the wastewater, and the regulatory and technical bases for those decisions.

Washington State law [Revised Code of Washington (RCW) 90.48.080 and 90.48.162] requires that a permit be issued before discharge of wastewater to waters of the state is allowed. Regulations adopted by the State include procedures for issuing permits [Chapter 173-216 Washington Administrative Code (WAC)], technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC) and water quality criteria for ground waters (Chapter 173-200 WAC). They also establish the basis for effluent limitations and other requirements which are to be included in the permit.

This fact sheet and draft permit are available for review by interested persons as described in Appendix A--Public Involvement Information.

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in these reviews have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Changes to the permit will be addressed in Appendix D--Response to Comments

<b>GENERAL INFORMATION</b>	
Applicant	City of Forks
Facility Name and Address	Forks Wastewater Treatment Plant 10 Nottingham Way Forks, WA 98331
Mailing Address	500 East Division Street Forks, WA 98331
Type of Treatment System	Activated sludge lagoon with aeration, and clarification
Discharge Location	Latitude: 47° 56' 57" N Longitude: 124° 24' 45" W.
Legal Description of Application Area	NE1/4 of NW1/4, Section 8, township 28 N., range 13 W.
Contact at Facility	Name: Dan Wahlgren, Plant Operator Telephone #: 360/374-3124, FAX #: 360/374-9430
Responsible Official	Name: Phil Arbeiter Title: Mayor Address: 500 East Division Forks, WA 98331

## **BACKGROUND INFORMATION**

### *DESCRIPTION OF THE COLLECTION AND TREATMENT SYSTEM*

#### **HISTORY**

The last permit for this facility was written in March of 1986 with no fact sheet. The facility and collection system were built in 1986 to replace failing on-site septic systems. The 1986 permit was the first permit for this facility and the permit has not been updated since that time. No recent changes have been made to the treatment system. However, changes to the system were made early on to improve mixing and increase aeration which has improved bacteria selection and the removal of nitrogen. The soils in the infiltration basins have a high rate of infiltration, so that even though the facility has eight infiltration basins, only one or two basins are used at any one time. The operator has at times moved the discharge from basin to basin to even out the groundwater discharge.

Sludge from the treatment plant has historically been sprayed on land adjacent to the facility. The sludge has been over applied to the application sites (separate from the effluent infiltration basins) and built up an accumulation of biosolids on the surface. These solids have probably sealed the ground preventing further infiltration of the liquid portion.

#### **COLLECTION SYSTEM STATUS**

The collection system was installed in 1986 along with the rest of the system and consists predominantly of PVC pipe. The Permittee submitted an inflow and infiltration (I&I) report in 1998 showing at times that I&I constituted up to ten percent of the design flow. The operator and town continue to evaluate and address I&I problems as they are found.

#### **TREATMENT PROCESSES**

The wastewater influent travels through the treatment system as follows: entering first a manually cleaned bar screen, comminutor type of grinder, Parshall flume with an ultrasonic flow meter, aeration basin, clarifier, and finally discharges effluent to infiltration basins. This system does not disinfect the waste water before discharge. As a result, there is no chlorine residual. The activated sludge basin is in the form of an aerated lagoon with one mixer and one aerator. The operation of the aerator is controlled by a dissolved oxygen probe in the lagoon and a timer to turn the aerator on and off. Sludge from the clarifier is returned to the lagoon or wasted to a sludge storage sump. At the time of writing this fact sheet, sludge was being trucked to the Port Angeles publicly owned treatment works (POTW) instead of being sprayed on-site.

#### **DISTRIBUTION SYSTEM (INFILTRATION BASIN)**

The effluent is discharged to one of eight infiltration basins at a time. The basins were originally intended to be filled with wastewater prior to infiltration. However, the infiltration rate is rapid enough that no one basin fills up. The operator can rotate the discharge to each infiltration basin, but uses only the first two basins to maintain vegetation and an even flow of water across the surface of those basins used.

#### **RESIDUAL SOLIDS**

The treatment facilities remove solids during the treatment of the wastewater at the headworks (grit and screenings), and at the clarifier, in addition to incidental solids (rags, scum, and other debris) removed as

*FACT SHEET FOR STATE WASTE DISCHARGE PERMIT ST 6031  
CITY OF FORKS*

part of the routine maintenance of the equipment. Grit, rags, scum and screenings are drained and disposed of as solid waste at the local transfer station.

At the time of writing this permit, the Permittee was in the process of changing how it processes solids removed from the clarifier. The Permittee is applying for coverage under the statewide Biosolids permit in order to meet the requirements of Chapter 173-308 WAC. The Permittee will be required under the wastewater permit to obtain a biosolids permit. The future options for managing biosolids range from: clearing away the existing biosolids and applying future biosolids at specified rates on-site; using a process to treat and dewater the biosolids in order to have a high quality product and returning liquid to the treatment system; or shipping all sludge to another POTW that can handle and process the sludge.

*GROUND WATER*

There are three monitoring wells that were intended to check the conditions of ground water at the facility. There is no documentation of direction of ground water flow, therefore, it is not clear from data gathered so far if the placement of the monitoring wells will intercept contaminated groundwater if it were to occur. Wells 1 and 2 were intended to be down gradient of the infiltration basins and sludge sprayfields. Well 3 is an unused public water supply well and is likely upgradient or outside of any influence of the site because of distance. The ground surface of the facility sprayfields and infiltration basins is roughly 60 feet in elevation above the surface of the Calawah River. There is a horizontal distance of 200 feet from the northern sludge sprayfield to the river and 400 feet from the infiltration basins.

The monitoring wells were completed within a water bearing zone between 96 feet and 108 feet below the surface. The static water levels were approximately 79 feet below the surface which places the static water level near in elevation to the level of the river. The depth and water level for these wells are very similar to water supply wells for the City of Forks which are located less than one mile east of the facility site.

Information on the ground soils and hydrology was provided by a soil survey and site feasibility study, conducted by Hong Consulting Engineers in 1982 for the Forks facility, and well logs for the monitoring wells. According to this study the terraced area where the facility site is located has 16-28 feet of soil at the surface that is composed of loose sand and gravel with excessively high permeability. Before site development, there was very little standing water, ponds or streams in this area. This surface layer is underlain by numerous relatively impervious till barriers that impede vertical water movement. The town water supply aquifer is under the till layer at 100-130 feet in depth and appears to recharge very rapidly. Groundwater flows in the terrace beneath the site are likely toward the Calawah River and probably trend generally southwest.

The permeability of the surface soils was confirmed during a recent site visit on February 7, 2002, which occurred at the end of a three inch rain event over two days. During this visit, very little water was observed in the two basins that were receiving effluent (0 to 3 inches standing water in the basin). The six other basins which were not in use did not have any standing water in them despite the large rain event.

*PERMIT STATUS*

The previous permit for this facility was issued on March 26, 1986.

An application for permit renewal was submitted to the Department in January 1996, and again in September 2001, and accepted by the Department at that time. It is assumed that the applicant submitted an application before the original expiration date in 1991, however, a complete record at the Department of Ecology is not readily available before 1995. Records were archived before 1995.

*FACT SHEET FOR STATE WASTE DISCHARGE PERMIT ST 6031  
CITY OF FORKS*

*SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT*

The facility last received an inspection on October 26, 1998, by Gerald Anderson, P.E. No samples were taken at that time. No major problems with the plant operation were noted at that time, however, it was noted that grease build-up was occurring in the clarifier. It was concluded that Fork's grease-trap ordinance has not been actively enforced. The facility received a technical assistance visit from the Department staff member Carl Jones on November 2, 2000, who assisted with issues related to biosolids treatment and composting.

During the history of the previous permit, the Permittee has mostly remained in compliance based on Discharge Monitoring Reports (DMRs) and other reports submitted to the Department and inspections conducted by the Department. There was one incident reported in December of 2001, where a sewer backed up and discharge 25 gallons of sewage onto a street due to equipment failure.

*WASTEWATER CHARACTERIZATION*

The concentration of pollutants in the discharge was reported in the permit application and in discharge monitoring reports. The proposed wastewater discharge prior to infiltration or land application is characterized for the following parameters:

**Table 1: Wastewater Characterization (DMR data from 11/98-10/01)**

Parameter	Concentration	Existing Limit
BOD <sub>5</sub>	4 mg/L average	30 mg/L
	4 lbs/d average	125 lbs/d
	98% average removal of influent	No limit for percent removal
TSS	5 mg/L average	30 mg/L
	5 lbs/d average	125 lbs/d
	97 average removal of influent	No limit for percent removal
pH	6.99 Standard Units, min 10 Standard Units, max (one time), 7.7 Standard Units, 95 <sup>th</sup> percentile	Shall not be outside the range of 6.0 to 9.0
Nitrate NO <sub>3</sub> -N	1.760 mg/L, 95 <sup>th</sup> percentile	No permit limit. (Ground water standard criteria 10 mg/L)
Nitrite NO <sub>2</sub> -N	0.049 mg/L, 95 <sup>th</sup> percentile	No permit limit.
Ammonia NH <sub>3</sub> -N	0.221 mg/L, 95 <sup>th</sup> percentile	No permit limit.

The Forks sewage treatment facility has had a good performance over the last three years with one incident of sewage backup in town, as noted above, and one incident of pH of 10. Otherwise all parameters monitored were well below limits set in the original permit (see table 1 above). The facility consistently removed more than 98 percent of the BOD and more than 97 percent of the TSS. The nutrient parameters, nitrate, nitrite, and ammonia, all had low values at the 95<sup>th</sup> percentile over the three years of data gathered.

One area the plant has had difficulty with is in the application of biosolids within agronomic rates. The application of biosolids has averaged 2.88 million gallons per year or 7,900 gallons per day. The

*FACT SHEET FOR STATE WASTE DISCHARGE PERMIT ST 6031  
CITY OF FORKS*

biosolids application is not covered or managed under the state waste discharge permit and is managed through a separate program at the Department. The original permit did not have limits for the application of biosolids. The Solid Waste Program at the Department is working with the Permittee to remedy the biosolids application problem.

It is unlikely that the town of Forks produces any toxics in quantity. No metals have been routinely measured. There are no industrial establishments and a couple of restaurants and service stations constitute the only commercial establishments.

*SEPA COMPLIANCE*

There are no known or proposed construction projects or changes to the system that would trigger State Environmental Policy Act (SEPA) at this time. Changes to the City's Biosolids Program will require compliance with SEPA when proposed.

**PROPOSED PERMIT LIMITATIONS**

State regulations require that limitations set forth in a waste discharge permit must be technology- and water quality-based. Wastewater must be treated using all known, available, and reasonable treatment (AKART) and not pollute the waters of the state.

The permit also includes limitations on the quantity and quality of the wastewater applied to the infiltration basins and the sludge sprayfield that have been determined to protect the quality of the ground water. The approved engineering report includes specific design criteria for this facility. Water quality-based limitations are based upon compliance with the Ground Water Quality Standards (Chapter 173-200 WAC).

The more stringent of the water quality-based or technology-based limits are applied to each of the parameters of concern. Each of these types of limits is described in more detail below.

*TECHNOLOGY-BASED EFFLUENT LIMITATIONS*

All waste discharge permits issued by the Department must specify conditions requiring available and reasonable methods of prevention, control, and treatment of discharges to waters of the state (WAC 173-216-110). The following permit limitations are necessary to satisfy the requirement for AKART:

**Table 2: Technology-Based Limits**

<b>Parameter</b>	<b>Limit</b>
pH	Shall be within the range of 6 to 9 standard units.
BOD <sub>5</sub> & TSS	Average Monthly Limit is the most stringent of the following:  30 mg/L  May not exceed fifteen percent (15%) of the average influent concentration.  Average Weekly Limit = 45 mg/L

The following technology-based mass limits are based on WAC 173-220-130(3)(b) and 173-221-030(11)(b).

*FACT SHEET FOR STATE WASTE DISCHARGE PERMIT ST 6031  
CITY OF FORKS*

Monthly effluent mass loadings (lbs/day) for BOD<sub>5</sub> and TSS were calculated as the maximum monthly design flow (0.5 mgd) x Concentration limit (30 mg/L) x 8.34 (conversion factor) = mass limit 125 lbs/day. The weekly mass limit is 1.5 x the monthly limit = 187 lbs/day.

*GROUND WATER QUALITY-BASED EFFLUENT LIMITATIONS*

In order to protect existing water quality and preserve the designated beneficial uses of Washington's ground waters including the protection of human health, WAC 173-200-100 states that waste discharge permits shall be conditioned in such a manner as to authorize only activities that will not cause violations of the Ground Water Quality Standards. Drinking water is the beneficial use generally requiring the highest quality of ground water. Providing protection to the level of drinking water standards will protect a great variety of existing and future beneficial uses.

Applicable ground water criteria as defined in Chapter 173-200 WAC and in RCW 90.48.520 for this discharge include the following:

**Table 3: Ground Water Quality Criteria**

Total Coliform Bacteria	1 Colony/ 100 ml
Total Dissolved Solids	500 mg/L
Chloride	250 mg/L
Sulfate	250 mg/L
Nitrate	10 mg/L
pH	6.5 to 8.5 standard units
Manganese	0.05 mg/L
Total Iron	0.3 mg/L
Toxics	No toxics in toxic amounts

The Department has reviewed existing records and is unable to determine if background ground water quality is either higher or lower than the criteria given in Chapter 173-200 WAC. The nearest water supply well appears to be greater than 500 feet to the east of the infiltration basins or the sludge sprayfields. The discharges authorized by this proposed permit are not expected to interfere with beneficial uses.

The resultant effluent limits were as follows:

**Table 4: Proposed Effluent Limitations.**

Parameter	Limitation
BOD <sub>5</sub>	Average monthly limit: 30 mg/L, 125 lbs/day May not exceed fifteen percent (15%) of the average influent concentration Average weekly limit: 45 mg/L, 187 lbs/day
TSS	Average monthly limit: 30 mg/L, 125 lbs/day May not exceed fifteen percent (15%) of the average influent concentration



*FACT SHEET FOR STATE WASTE DISCHARGE PERMIT ST 6031  
CITY OF FORKS*

	Average weekly limit: 45 mg/L, 187 lbs/day
pH	Shall not be outside the range of 6.0 to 9.0

The direction of groundwater flow at the site has not been well documented. Water levels in the monitoring wells have not been routinely taken. As stated earlier, the direction of water flow was believed to be toward the Calawah River and trending to the southwest. Since the Calawah River is to the north west, the original directions may be contradictory. However, effluent quality appears to be good. If at a future date effluent quality is in question, an assessment of ground water flows should be conducted. An evaluation of ground water flow would at a minimum entail a proper survey of well casing elevations, and regular water depth measurements and may require installation additional monitoring wells.

The monitoring wells were installed after the initial determination of ground water flow direction. A determination of ground water flow in the City's main aquifer by a hydrogeologist will be necessary. The monitoring well No. 3 (city well No. 4) is likely up-gradient in either case. Background data on well No. 3 shows that almost all parameters are below water quality standards or below detection. However, it has not been demonstrated that the monitoring wells are properly located in order to intercept ground water flowing away from the site.

The disinfection of the effluent was not required in the previous permit. Because the infiltration basins are isolated, there is no sprayed effluent, the basins are surrounded by a 100-foot buffer, and public access to the basins is restricted by fencing, disinfection will not be required in this permit.

*COMPARISON OF LIMITATIONS WITH THE EXISTING PERMIT ISSUED IN 1986*

**Table 5: Comparison of Previous and New Limits**

<b>Parameter</b>	<b>Existing Limits (from 1986)</b>	<b>Proposed Limits</b>
BOD <sub>5</sub>	Average monthly limit 30 mg/L, 125 lbs/day	Average monthly limit 30 mg/L, 125 lbs/day  May not exceed fifteen percent (15%) of the average influent concentration  Average weekly limit 45 mg/L, 187 lbs/day
TSS	Average monthly limit 30 mg/L, 125 lbs/day	Average monthly limit 30 mg/L, 125 lbs/day  May not exceed fifteen percent (15%) of the average influent concentration  Average weekly limit 45 mg/L, 187 lbs/day
pH	Shall not be outside the range	Shall not be outside the range

	of 6.0 to 9.0	of 6.0 to 9.0
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### MONITORING REQUIREMENTS

Monitoring, recording, and reporting are specified to verify that the treatment process is functioning correctly, that ground water criteria are not violated, and that effluent limitations are being achieved (WAC 173-216-110).

#### *INFLUENT AND EFFLUENT MONITORING*

The monitoring and testing schedule is detailed in the proposed permit under Condition S2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

Monitoring for fecal coliform, nitrates and ammonia is being required to further characterize the effluent. These pollutants could have a significant impact on the quality of the ground water.

#### *GROUND WATER MONITORING*

The monitoring of ground water at the site is required in accordance with the Ground Water Quality Standards, Chapter 173-200 WAC. The Department has determined that this discharge has a potential to pollute the ground water. Therefore, the Permittee is required to evaluate the impacts on ground water quality. Monitoring of the ground water at the site boundaries and within the site is an integral component of such an evaluation. Monitoring ground water will be required once per quarter. Static water depth in the monitoring wells will be added to the monitoring schedule to aid in determining the direction of ground water flow.

### OTHER PERMIT CONDITIONS

#### *REPORTING AND RECORDKEEPING*

The conditions of S3 are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 273-216-110).

#### *FACILITY LOADING*

The design criteria for this treatment facility are taken from a 1986 engineering report prepared by Kramer, Chin and Mayo and are as follows:

Annual average flow	0.30 mgd
Monthly average flow (max. month):	0.50 mgd
Instantaneous peak flow (peak hour):	0.91 mgd
BOD influent loading (average annual):	434 lbs/day
TSS influent loading (average annual):	434 lbs/day
Design population equivalent	1,500 people

The permit requires the Permittee to maintain adequate capacity to treat the flows and waste loading to the treatment plant (WAC 173-216-110[4]). The Permittee is required to submit an engineering report when the plant reaches 85 percent of its flow or loading capacity. For significant new discharges, the

*FACT SHEET FOR STATE WASTE DISCHARGE PERMIT ST 6031  
CITY OF FORKS*

permit requires a new application and an engineering report (WAC 173-216-110[5]). At the present time, the plant averages 71 percent of design capacity for flow and 80 percent of capacity based on the design population. The permit requires the Permittee to submit annual reports comparing the actual flow and waste loadings to the design criteria for the plant.

*IRRIGATION AND CROP MANAGEMENT PLANS*

The infiltration basins do not have a crop and are not irrigating. However, the sludge sprayfield is supplying irrigation to a forest crop. If the sludge sprayfield is to continue, the irrigation rates will have to be within agronomic rates and must comply with WAC 173-308. This application should be covered by the statewide biosolids monitoring plan administered by the Solid Waste Program at the Department. If application of sludge solids and liquid is to continue on-site, the Permittee will be required to submit an irrigation plan which should describe and evaluate various irrigation controls. The irrigation and crop management plan is required to support the engineering report and operations and maintenance manual.

*OPERATIONS AND MAINTENANCE*

The facility has not updated their O&M manual since 1986, much has changed in the operation of the facility since that time. The proposed permit contains Condition S.5 as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment. The proposed permit requires submission of an updated O&M manual in S5.G for the entire wastewater system.

*RESIDUAL SOLIDS HANDLING*

To prevent water pollution the Permittee is required in permit Condition S6 to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and State Water Quality Standards, WAC 173-201A, and Biosolids Handling regulations covered under WAC173-308

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR 503. The disposal of other solid waste is under the jurisdiction of the local health district.

*PRETREATMENT*

WAC 173-216-110 requires that the list of prohibitions in WAC 173-216-060 be included in the permit.

Federal pretreatment requirements in 40 CFR 403 and Sections 307(b) and 308 of the Clean Water Act apply to this facility. Therefore, notification to the Department is required when pretreatment prohibitions are violated and when new sources of commercial or industrial wastewater discharge are added to its system.

*Duty to Enforce Discharge Prohibitions*

This provision prohibits the POTW from authorizing or permitting an industrial discharger to discharge certain types of waste into the sanitary sewer. The first portion of the provision prohibits acceptance of pollutants which cause pass through or interference. The definitions of pass through and interference are in Appendix B of this fact sheet.

The second portion of this provision prohibits the POTW from accepting certain specific types of wastes, namely those which are explosive, flammable, excessively acidic, basic, otherwise corrosive, or

*FACT SHEET FOR STATE WASTE DISCHARGE PERMIT ST 6031  
CITY OF FORKS*

obstructive to the system. In addition wastes with excessive BOD, petroleum based oils, or which result in toxic gases are prohibited to be discharged. The regulatory basis for these prohibitions is 40 CFR Part 403, with the exception of the pH provisions which are based on WAC 173-216-060.

The third portion of this provision prohibits certain types of discharges including cooling water in significant volumes, stormwater and other direct inflow sources, and wastewaters significantly affecting system hydraulic loading, which do not require treatment.

Included in the pretreatment portion of the permit is a requirement to establish a local ordinance to include the items listed as prohibitions and to require restaurants to have their grease traps pumped out at least once per year.

*GROUND WATER QUALITY EVALUATION (HYDROGEOLOGIC STUDY)*

A hydrologic study will not be required at this time. However, a study may be required in the future if the quality of treatment deteriorates. If a study is required, the Permittee would need to prepare and submit a hydrogeologic study for Departmental approval in accordance with WAC 173-200-080. The hydrogeologic study would need to be based on soil and hydrogeologic characteristics and be capable of assessing impacts on ground water. Guidelines are given in the *Implementation Guidance for the Ground Water Quality Standards*, Ecology 1996.

The hydrologic study, if needed, should use the existing wells to the greatest extent possible. The intention is to determine the direction of ground water flow and determine if additional monitoring wells are needed.

*GENERAL CONDITIONS*

General Conditions are based directly on state laws and regulations and have been standardized for all industrial waste discharge to ground water permits issued by the Department.

Condition G1 requires responsible officials or their designated representatives to sign submittals to the Department. Condition G2 requires the Permittee to allow the Department to access the treatment system, production facility, and records related to the permit. Condition G3 specifies conditions for modifying, suspending or terminating the permit. Condition G4 requires the Permittee to apply to the Department prior to increasing or varying the discharge from the levels stated in the permit application. Condition G5 requires the Permittee to submit written notice of significant increases in the amount or nature of discharges (typically new industrial discharges) into the sewer system tributary to the permitted facility. Condition G6 requires the Permittee to construct, modify, and operate the permitted facility in accordance with approved engineering documents. Condition G7 prohibits the Permittee from using the permit as a basis for violating any laws, statutes or regulations. Condition G8 requires application for permit renewal 60 days prior to the expiration of the permit. Condition G9 requires the payment of permit fees. Condition G10 describes the penalties for violating permit conditions.

**RECOMMENDATION FOR PERMIT ISSUANCE**

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, and to protect human health and the beneficial uses of waters of the state of Washington. The Department proposes that the permit be issued for five years.

**REFERENCES FOR TEXT AND APPENDICES**

- Faulkner, S.P., Patrick Jr., W.H., Gambrell, R.P., May-June, 1989. Field Techniques for Measuring Wetland Soil Parameters, Soil Science Society of America Journal, Vol. 53, No.3.
- Washington State Department of Ecology, 1993. Guidelines for Preparation of Engineering Reports for Industrial Wastewater Land Application Systems, Ecology Publication # 93-36. 20 pp.
- Washington State Department of Ecology and Department of Health, 1997. Water Reclamation and Reuse Standards, Ecology Publication # 97-23. 73 pp.
- Washington State Department of Ecology, 1996. Implementation Guidance for the Ground Water Quality Standards, Ecology Publication # 96-02.
- Washington State University, November, 1981. Laboratory Procedures - Soil Testing Laboratory. 38 pp.

## APPENDICES

### APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to issue a permit to the applicant listed on page one of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on March 27, 2002, and in the *Forks Forum* to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department published a Public Notice of Draft (PNOD) on June 26, 2002 in the *Forks Forum* to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Administrator  
Department of Ecology  
Southwest Regional Office  
P.O. Box 47775  
Olympia, WA 98504-7775.

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the 30-day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-216-100). Public notice regarding any hearing will be circulated at least 30 days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing.

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within 30 days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (360) 407-6554, or by writing to the address listed above.

This permit was written by Eric Schlorff.

*APPENDIX B--GLOSSARY*

**Ambient Water Quality**--The existing environmental condition of the water in a receiving water body.

**Ammonia**--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

**Average Monthly Discharge Limitation**--The average of the measured values obtained over a calendar month's time.

**Best Management Practices (BMPs)**--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

**BOD<sub>5</sub>**--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD<sub>5</sub> is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

**Bypass**--The intentional diversion of waste streams from any portion of the collection or treatment facility.

**Chlorine**--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

**Compliance Inspection - Without Sampling**--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

**Compliance Inspection - With Sampling**--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Additional sampling may be conducted.

**Composite Sample**--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

**Construction Activity**--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

**Continuous Monitoring** --Uninterrupted, unless otherwise noted in the permit.

**Distribution Uniformity**--The uniformity of infiltration (or application in the case of sprinkle or trickle irrigation) throughout the field expressed as a percent relating to the average depth infiltrated in the lowest one-quarter of the area to the average depth of water infiltrated.

**Engineering Report**--A document, signed by a professional licensed engineer, which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

**Fecal Coliform Bacteria**--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

**Grab Sample**--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

**Industrial Wastewater**--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

**Interference** -- A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal and;

Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued there under (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

**Maximum Daily Discharge Limitation**--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

**Method Detection Level (MDL)**--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

**Pass Through** -- A discharge which exits the POTW into waters of the State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of State water quality standards.

**pH**--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.



**Quantitation Level (QL)**-- A calculated value five times the MDL (method detection level).

**Soil Scientist**--An individual who is registered as a Certified or Registered Professional Soil Scientist or as a Certified Professional Soil Specialist by the American Registry of Certified Professionals in Agronomy, Crops, and Soils or by the National Society of Consulting Scientists or who has the credentials for membership. Minimum requirements for eligibility are: possession of a baccalaureate, masters, or doctorate degree from a U.S. or Canadian institution with a minimum of 30 semester hours or 45 quarter hours professional core courses in agronomy, crops or soils, and have 5,3,or 1 years, respectively, of professional experience working in the area of agronomy, crops, or soils.

**State Waters**--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

**Stormwater**--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

**Technology-based Effluent Limit**--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

**Total Coliform Bacteria**--A microbiological test which detects and enumerates the total coliform group of bacteria in water samples.

**Total Dissolved Solids**--That portion of total solids in water or wastewater that passes through a specific filter.

**Total Suspended Solids (TSS)**--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

**Water Quality-based Effluent Limit**--A limit on the concentration of an effluent parameter that is intended to prevent pollution of the receiving water.

*FACT SHEET FOR STATE WASTE DISCHARGE PERMIT ST 6031  
CITY OF FORKS*

*APPENDIX C--TECHNICAL CALCULATIONS*

*FACT SHEET FOR STATE WASTE DISCHARGE PERMIT ST 6031  
CITY OF FORKS*

*APPENDIX D--RESPONSE TO COMMENTS*